CLAIMS

1. Agglomerated zeolitic adsorbents based on zeolite X with an Si/Al ratio such that 1.15 < Si/Al ≤ 1.5, at least 90% of the exchangeable cationic sites of the zeolite X of which are occupied either by barium ions alone or by barium ions and potassium ions, it being possible for the exchangeable sites occupied by potassium to represent up to 1/3 of the exchangeable sites occupied by barium + potassium (the possible remainder generally being provided by alkali metal or alkaline earth metal ions other than barium) and an inert binder, characterized in that the Dubinin volume of the-said adsorbents measured by nitrogen adsorption at 77°K after degassing under vacuum at 300°C for 16 h, is greater than or equal to 0.240 cm^3/g.

2. Adsorbents according to Claim 1 whose Dubinin volume is ,greater than or equal to 0.245 cm^3/g.

3. Adsorbents according to Claim 1 or 2, the overall degree of exchange of which with regard to barium alone or with regard to barium + potassium is greater than or equal to 95%.

4. Adsorbents according to Claims 1 to 3, the loss on ignition of which, measured at 900°C, is between 4.0 and 7.7% and preferably between 5.2 and 7.7%.

5. Process for producing the adsorbents as defined in any one of claims 1 to 4, comprising the following stages:

- a) agglomerating zeolite X powder with a binder comprising at least 80% by weight of clay which can be converted to zeolite and shaping, then drying and calcining,

- b) zeolitization of the binder by the action of an alkaline solution,

- c) replacement of at least 90% of the exchangeable sites of the zeolite X by barium, followed by washing and drying the product thus treated,

- d) optionally replacement of at most 33% of the exchangeable sites of the zeolite X by potassium, followed by washing and drying the product thus treated,

- e) activation,

it being possible for the optional exchange with potassium (stage d)) to be carried out before or after the exchange with barium (stage c)).

6. Process for producing adsorbents according to Claim 5, characterized in that the activation in stage e) is a thermal activation carried out at a temperature of 200 to 300°C.

7. Process for producing adsorbents comprising a binder which can be converted to zeolite according to Claim 5 or 6, characterized in that the alkaline solution of stage b)) has a concentration of at least 0.5M.

8. Process for the recovery of para-xylene from C_8 aromatic isomer fractions in the liquid phase by adsorption of the para-xylene by means of an adsorbent according to any one of Claims 1 to 4 in the presence of a desorbent.

9. Process for the recovery of para-xylene according to Claim 8 of simulated moving-bed type.

10. Process for the recovery of para-xylene according to Claim 9 of simulated countercurrent type.

11. Process for the recovery of para-xylene according to Claim 9 of simulated cocurrent type.

12. Process for the recovery of para-xylene from C_8 aromatic isomer fractions in the gas phase by adsorption of the para-xylene by means of an adsorbent according to any one of Claims 1 to 4 in the presence of a desorbent.

13. Process for the recovery of para-xylene according to any one of Claims 8 to 12, in which process the desorbent is toluene or para-diethylbenzene.

14. Process for the separation of sugars employing an adsorbent according to any one of Claims 1 to 4.

15. Process for the separation of polyhydric alcohols employing an adsorbent according to any one of Claims 1 to 4.

16. Process for the separation of substituted toluene isomers, such as nitrotoluene, diethyltoluene or toluenediamine, employing an adsorbent according to any one of Claims 1 to 4.

17. Process for the separation of cresols employing an adsorbent according to any one of Claims 1 to 4.